



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/572,720	08/01/2006	R. Bruce Weisman	11321-P075WOUS	4669
61060	7590	02/10/2009	EXAMINER	
WINSTEAD PC			KOSLOW, CAROL M	
P.O. BOX 50784			ART UNIT	
DALLAS, TX 75201			PAPER NUMBER	
			1793	
			MAIL DATE	
			DELIVERY MODE	
			02/10/2009	
			PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/572,720

**Applicant(s)**

WEISMAN ET AL.

**Examiner**

C. Melissa Koslow

**Art Unit**

1793

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 December 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 and 76-80 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 76-80 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8508)
- Paper No(s)/Mail Date 12/15/08
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

This action is in response to applicants' amendment of 8 December 2008. The amendment to the specification has overcome the objection to the disclosure. The amendments to the claims have overcome the objections to the specification for failing to provide proper antecedent basis for claimed subject matter and the 35 USC 112 rejections.

Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged. Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 119(e) as follows:

The later-filed application must be an application for a patent for an invention which is also disclosed in the prior application (the parent or original nonprovisional application or provisional application). The disclosure of the invention in the parent application and in the later-filed application must be sufficient to comply with the requirements of the first paragraph of 35 U.S.C. 112. See *Transco Products, Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994).

The disclosure of the prior-filed application, Application No. 60/500,394, fails to provide adequate support or enablement in the manner provided by the first paragraph of 35 U.S.C. 112 for one or more claims of this application.

Provisional application 60/500,394 teaches the taught ink deposited in a patterned form but does not teach the subject matter of new claims 77-80.

In view of the amendment to claim 6, the claimed subject matter is now found in provisional application 60/500,394.

Accordingly, the subject matter of claims 3, 5, 6, 10, 76, the embodiments of claims 1 and 2 where the carbon nanotubes are single walled; the embodiments of claim 7 where the liquid medium is water, organic solvents and combinations thereof and the embodiment of claim 8 where the medium is water. Thus this claimed subject matter has the effective filing date of 5 September 2003. The other embodiments of claims 1, 2, 7 and 8 and the subject matter of claims 4, 9 and 77-80 have the effective filing date of 2 September 2004.

Claims 1 and 76 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is indefinite as to what is being claimed, the ink or the dried deposited mark on a substrate. Claim 76 added to the indefiniteness since it teaches the ink is deposited in a patterned form.

Since the originally examined claims were directed to an ink, claim 1 is being treated as to an ink and thus the deposition and evaporation steps in claim 1 are being given no weight since they are directed to the use of the ink.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1 and 76 are rejected under 35 U.S.C. 102(a or b) as being anticipated by JP 2003-026981.

If the taught carbon nanotubes are SWNT, the rejection is based on 35 U.S.C. 102(a). If the taught carbon nanotubes are MWNT, DWNT, combinations thereof; mixtures of SWNT with

at least one of MWNT and DWNT or any other type of carbon nanotube, the rejection is based on 35 U.S.C. 102(b).

This reference teaches an ink, which is printed on paper, and thus is formulated for adhesion to paper, comprising a dispersion of carbon nanotubes, which inherently are fluorescent and emit a wavelength when irradiated with visible light. The reference teaches the claimed ink.

Applicants argue that the fluorescence of the carbon nanotubes depends on the dispersion, diameter and chirality, but they have not provided any evidence to support this assertion or have the presented any evidence that the taught carbon nanotubes are not fluorescent. The rejection is maintained.

Claim 1 and 76 are rejected under 35 U.S.C. 102( b) as being anticipated by U.S. patent 6,330,939.

This reference teaches an ink, which is printed on a substrate, and thus is formulated for adhesion to a substrate, comprising a dispersion of carbon nanotubes, which inherently are fluorescent and emit a wavelength when irradiated with visible light. The reference teaches the claimed ink.

Applicants argue that the taught ink does not use the carbon nanotubes as a fluorescent agent but for its magnetic and electrical properties. The intended use of the nanotubes in the ink does not overcome a rejection based on anticipation. There has been no showing that the taught ink also does not exhibit fluorescence. Applicants argue that the fluorescence of the carbon nanotubes depends on the dispersion, diameter and chirality, but they have not provided any evidence to support this assertion or have the presented any evidence that the taught carbon nanotubes are not fluorescent. The rejection is maintained.

Claim 1 and 76 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. patent application publication 2002/0025490.

This reference teaches an ink comprising a dispersion of carbon nanotubes, which inherently are fluorescent and emit a wavelength when irradiated with visible light (para 129-133:part (G) ). This ink is printed on a substrate and thus is formulated for adhesion to a substrate and can invisible (para 4). The reference teaches the claimed ink.

Applicants argue that the fluorescence of the carbon nanotubes depends on the dispersion, diameter and chirality, but they have not provided any evidence to support this assertion or have the presented any evidence that the taught carbon nanotubes are not fluorescent. The rejection is maintained.

Claims 1-3, 7-10, 76, 78 and 79 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. patent 7,097,788.

This reference teaches a ink that is printed on a substrate and thus is formulated for adhesion to substrate, comprising a dispersion of carbon nanotubes in a mixture of binder and solvent. The ink can also contain surfactants and dyes. The carbon nanotubes can be SWNTs, DWNT or MWNTs, all of which are chemically derived. The taught nanotubes which inherently are fluorescent and emit a near IR wavelengths when irradiated with visible light. The solvent can be water, organic solvents and mixtures thereof. The reference teaches the claimed ink.

The fact the taught ink has a different use than the claimed ink does not overcome a rejection based on anticipation. There has been no showing that the taught ink also does not exhibit fluorescence. Applicants argue that the fluorescence of the carbon nanotubes depends on the dispersion, diameter and chirality, but they have not provided any evidence to support this

assertion or have the presented any evidence that the taught carbon nanotubes are not fluorescent. The rejection is maintained.

Claims 1-10 and 76-80 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent application publication 2002/0025490 in combination with the article by O'Connell et al.

As discussed above, U.S. patent application publication 2002/0025490 teaches the claimed ink which can be invisible. The examples teach the compositions of the inks in which the carbon nanotubes are dispersed. These inks comprise a liquid medium selected from water, organic solvents and mixtures thereof and a polymeric binder and optionally, surfactants or dyes. The published application teaches the nanotubes can be any which are Raman-active. The article teaches SWNT with a diameter of 0.7-1.1 nm are Raman-active. The nanotube population taught in the article is separated homogenous population which was chemically derived. The article teaches that all the nanotubes are semiconductive which means that are also homogenized by electronic form. Thus one of ordinary skill in the art would have found it obvious to use SWNTs with a diameter of 0.7-1.1 nm as the carbon nanotubes in the taught ink. The references suggest the claimed ink.

Applicants' arguments have been considered but are not convincing. Lines 4-8 in the first column on page 596 indicate that nanotubes not in a micelle suspension will also fluoresce. Thus the reference does not teach away from their use in the ink of U.S. patent application publication 2002/0025490. In addition, the fluorescence is due to the band gap of the tubes which is not dependent on the material in which they are dispersed, as long as the tubes are not agglomerated.

The articles unagglomerated tubes which are not dispersed in a micelle suspension. The rejection is maintained.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (571) 272-1371. The examiner can normally be reached on Monday-Friday from 8:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorenzo, can be reached at (571) 272-1233.

The fax number for all official communications is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Application/Control Number: 10/572,720  
Art Unit: 1793

Page 8

/cmk/  
February 9, 2009

/C. Melissa Koslow/  
Primary Examiner  
Art Unit 1793